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IN THE CLAIMS:

Please add new claims [c28] and [c29], and please amend the claims as follows:

[c1] (currently amended) An electron beam exposure apparatus for exposing a wafer by an electron beam, comprising:

a general control section for controlling the electron beam exposure apparatus collectively;

a first buffer memory for temporarily storing exposure data, which ~~is~~ include data of an exposure pattern to be formed on the wafer;

a second buffer memory for temporarily storing the exposure data;

a first exposure section for applying the electron beam to the wafer based on the exposure data output from said first buffer memory; and

a first comparing section for comparing the exposure data output from said first buffer memory with the exposure data output from said second buffer memory, and for notifying the comparison result to said general control section;

wherein the exposure data stored in said first buffer memory and the exposure data stored in said second buffer memory are identical to one another when no error is involved in the electron beam exposure apparatus.

[c2] (original) The electron beam exposure apparatus as claimed in claim 1, wherein

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said first comparing section notifies said general control section whether the exposure data output from said first buffer memory is consistent with the exposure data output from said second buffer memory as the comparison result, and

said general control section stores the comparison result in association with an exposure area to be exposed based on the exposure data.

[c3] (original) The electron beam exposure apparatus as claimed in claim 1, wherein said first comparing section compares the exposure data output from said first buffer memory with the exposure data output from said second buffer memory bit by bit.

[c4] (currently amended) The electron beam exposure apparatus as claimed in claim 2, further comprising:

a second exposure section for applying an electron beam to a different wafer from the wafer based on the exposure data output from said first buffer memory;

a first pattern generation section for generating shot data, which ~~is~~ are the exposure data output from said first buffer memory being split into shots;

a second pattern generation section for generating shot data, which ~~is~~ are the exposure data output from said first buffer memory being split into shots; and

a second comparing section for comparing the shot data output from said first pattern generation section with the

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shot data output from said second pattern generation section, and for notifying the comparison result to said general control section.

[c5] (currently amended) The electron beam exposure apparatus as claimed in claim 4, wherein

said second comparing section notifies said general control section whether the shot data output from said first pattern generation section ~~is~~ are consistent with the shot data output from said second pattern generation section as the comparison result, and

said general control section stores the comparison result notified from said second comparing section in association with the comparison result notified from said first comparing section.

[c6] (currently amended) The electron beam exposure apparatus as claimed in claim 1, further comprising a second exposure section for applying an electron beam to ~~the~~ a different wafer based on the exposure data output from said second buffer memory.

[c7] (currently amended) The electron beam exposure apparatus as claimed in ~~claim 6~~ claim 4, further comprising:

a first pattern correction section for correcting the shot data output from said first pattern generation section;  
a second pattern correction section for correcting the shot data output from said second pattern generation section;  
and

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a third comparing section for comparing the shot data output from said first pattern correction section with the shot data output from said second pattern correction section, and for notifying the comparison result to said general control section.

[c8] (currently amended) The electron beam exposure apparatus as claimed in claim 7, wherein

said third comparing section notifies said general control section whether the shot data output from said first pattern correction section ~~is~~ are consistent with the shot data output from said second pattern correction section as the comparison result, and

said general control section stores the comparison result notified from said third comparing section in association with the comparison result notified from said first comparing section.

[c9] (canceled)

[c10] (canceled)

[c11] (canceled)

[c12] (canceled)

[c13] (currently amended) An exposure apparatus for writing a desired exposure pattern to a wafer, comprising:

a buffer memory storing thereon exposure data, which ~~is~~ include data of an exposure pattern to be formed on the wafer;

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a comparing section for comparing a first exposure data output from said buffer memory based on a first control signal for exposing a first area of the wafer with a second exposure data output from said buffer memory based on a second control signal for exposing a second area of the wafer where the same exposure pattern as the first area is to be written; and

an error detection section for detecting an error of the exposure pattern formed to the wafer based on the comparison result by said comparing section;

wherein the first exposure data and the second exposure data output from said buffer memory are identical to one another when no error is involved in the electron beam exposure apparatus.

[c14] (original) The exposure apparatus as claimed in claim 13, further comprising a first expect memory storing thereon the first exposure data output from said buffer memory, wherein said comparing section compares the first exposure data output from said first expect memory with the second exposure data output from said buffer memory.

[c15] (original) The exposure apparatus as claimed in claim 14, wherein said comparing section compares the first exposure data output from said first expect memory with the second exposure data output from said buffer memory bit by bit.

[c16] (original) The exposure apparatus as claimed in claim 14, further comprising a comparison result storing section storing

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thereon information indicating whether the first exposure data and the second exposure data are the same as each other as a comparison result in association with identification information on the second area, wherein said error detection section detects an error of the exposure pattern formed to the wafer based on the comparison result stored on said comparison result storing section.

[c17] (currently amended) The exposure apparatus as claimed in claim 16, wherein

said comparing section compares the first exposure data output from said first expect memory with a third exposure data output from said buffer memory based on a third control signal for exposing a third area of the wafer where the same exposure pattern as the first area is to be written,

said comparison result storing section stores information indicating whether the first exposure data and the second exposure data are the same as each other, and information indicating whether the first exposure data and the third exposure data are the same as each other, as the comparison result, and

said error detection section judges that there is an error in the exposure pattern formed to the third area when the first exposure data and the second exposure data are the same as each other and the first exposure data differs from the third exposure data, and judges that there is an error in the exposure pattern formed to the first area when the first

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exposure data differs from the second exposure data and the first exposure data differs from the third exposure data.

[c18] (currently amended) The exposure apparatus as claimed in claim 14, further comprising a wafer stage mounting thereon the wafer for exposing the wafer while said wafer stage is moving in a first direction and then changing the direction and moving in a second direction opposite from the first direction, wherein in case that said wafer stage changes the direction, the first exposure data output from said buffer memory ~~is~~ are written to said first expect memory.

[c19] (currently amended) The exposure apparatus as claimed in claim 14, further comprising a second expect memory storing thereon the second exposure data output from said buffer memory, wherein said comparing section compares the second exposure data output from said second expect memory with the third exposure data output from said buffer memory based on a third control signal for exposing a third area of the wafer where the same exposure pattern as the first area is to be written.

[c20] (original) The exposure apparatus as claimed in claim 19, further comprising:

a first expect memory control section for causing the first exposure data to be written to said first expect memory while said buffer memory is outputting the first exposure data, for causing said comparing section to read the first exposure data from said first expect memory while said buffer

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memory is outputting the second exposure data, and for causing the third exposure data to be written to said first expect memory while said buffer memory is outputting the third exposure data; and

a second expect memory control section for causing the second exposure data to be written to said second expect memory while said buffer memory is outputting the second exposure data, and for causing said comparing section to read the second exposure data from said second expect memory while said buffer memory is outputting the third exposure data.

[c21] (currently amended) A pattern error detection method of detecting an error of an exposure pattern formed to a wafer, comprising steps of:

exposing the wafer using a first exposure data output from a buffer memory based on a first control signal for exposing a first area of the wafer;

exposing the wafer using a second exposure data output from the buffer memory based on a second control signal for exposing a second area of the wafer where the same exposure pattern as the first area is to be written;

comparing the first exposure data with the second exposure data; and

detecting the error of the exposure pattern formed to the wafer based on a comparison result in said comparison step;



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wherein the first exposure data and the second exposure data output from said buffer memory are identical to one another when no error is involved in the electron beam exposure apparatus.

[c22] (currently amended) An exposure apparatus for writing a desired exposure pattern to a wafer, comprising:

a buffer memory storing thereon exposure data, which ~~is~~ include data of the exposure pattern to be formed on the wafer;

an expect data generating section for generating a first expect data, which is an expected value of the exposure data to be output from said buffer memory based on a first control signal for exposing a first area of the wafer;

a comparing section for comparing a first exposure data output from said buffer memory based on the first control signal with the first expect data generated by said expect data generating section;

an exposure section for exposing the wafer based on the first exposure data output from said buffer memory; and

an error detection section for detecting an error of an exposure pattern formed to the wafer based on a comparison result by said comparing section.

wherein the first exposure data stored in said buffer memory and the first expect data generated by said expect data

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generating section are identical to one another when no error is involved in the electron beam exposure apparatus.

[c23] (original) The exposure apparatus as claimed in claim 22, further comprising a first expect memory storing thereon the first expect data generated by said expect data generating section, wherein said comparing section compares the first expect data output from said first expect memory with the first exposure data output from said buffer memory.

[c24] (currently amended) The exposure apparatus as claimed in claim 23, further comprising a wafer stage mounting thereon the wafer, wherein

said wafer stage moves in a first direction, then changes the direction and moves to a second direction opposite from the first direction,

said exposure section performs first exposure processing on the first area while said wafer stage is moving in the first direction and performs second exposure processing on the first area while said wafer stage is moving in the second direction, and

the first expect data ~~is~~ are written to said first expect memory between the first exposure processing and the second exposure processing.

[c25] (currently amended) The exposure apparatus as claimed in claim 23, further comprising a wafer stage mounting thereon the wafer, wherein

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said wafer stage moves in a first direction, then changes the direction and moves to a second direction opposite from the first direction,

said exposure section performs second exposure processing on the first area while said wafer stage is moving in the second direction after it has performed first exposure processing on the first area while said wafer stage has been moving in the first direction, and

the first expect data, which ~~is~~ are generated by said expect data generating section, ~~is~~ are written to said first expect memory during the first exposure processing.

[c26] (currently amended) The exposure apparatus as claimed in claim 25, further comprising a second expect memory storing thereon second expect data to be output from said buffer memory based on a second control signal for exposing a second area of the wafer, wherein

said wafer stage changes the direction once again to the first direction after it has moved in the second direction,

said exposure section performs third exposure processing on the second area while said wafer stage is moving in the first direction after performing the second exposure processing on the first area while said wafer stage has been moving in the second direction,

said comparing section compares the first expect data output from said first expect memory during the second

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exposure processing with the first exposure data output from said buffer memory, and

the second expect data, which ~~is~~ are generated by said expect data generating section, ~~is~~ are written to said second expect memory during the second exposure processing.

[c27] (canceled)

[c28] (new) The electron beam exposure apparatus as claimed in claim 1, wherein

when the exposure data output from the first buffer memory is consistent with the exposure data output from the second buffer memory, said general control section decides that the exposure pattern formed based on the exposure data is to be inspected.

[c29] (new) The electron beam exposure apparatus as claimed in claim 28, wherein

when the exposure data output from the first buffer memory is inconsistent with the exposure data output from the second buffer memory, said general control section decides that an inspection process on the exposure pattern formed based on the exposure data be omitted and proceeds to a photoresist removal process.